



(11) AU-A1-54,159/79

(12) PATENT SPECIFICATION  
ABSTRACT  
(19) AU

(21) 54,159/79 (22) 21.12.79 (24) 22.12.78  
(31) 972500 (32) 22.12.78 (33) US  
(43) 26.6.80  
(51)<sup>2</sup> B01D 53/14  
(54) Removal of cyclic urea from gas scrubbing solution  
(71) Exxon Research and Engineering Co.  
(72) Say, G.R., Hays, J.R. Sr. and Iyengar, J.N.  
(74) WM  
(57) Claim

1. An acid gas scrubbing process wherein a cyclic urea reaction by-product of said acid scrubbing process is selectively removed, said process being characterized by comprising:

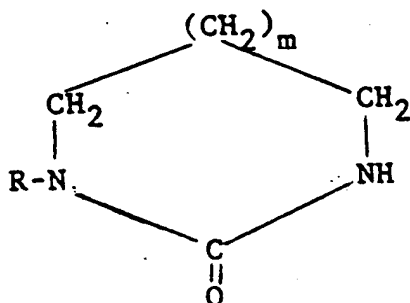
a. contacting an acid gas mixture with an aqueous solution in an absorption zone, said aqueous solution comprising a basic alkali salt, or metal hydroxide selected from the group consisting of alkali metal bicarbonates, carbonates, hydroxides, borates, phosphates and their mixtures, and an activator for said basic salt comprising at least one sterically hindered amine having the generic formula:



where R is a secondary or tertiary alkyl or cycloalkyl hydrocarbon having 4-20 carbon atoms and m is 2 - 5, at elevated temperatures and pressures such that there is formed a cyclic urea reaction product having the formula:

(11) AU-A1-54,159/79

-2-



where R is a secondary or tertiary alkyl or cycloalkyl hydrocarbon having 4 - 20 carbon atoms and m is 0 - 3;

b. passing said acid gas rich aqueous solution to a regeneration zone where it is contacted with steam to remove the acid gas impurities therefrom;

c. cooling a portion of the lean solution exiting from said regeneration zone to a temperature ranging from 180-80°F. to selectively precipitate the cyclic urea from said lean solution;

d. passing said lean solution containing said precipitated cyclic urea to a separation zone to remove at least a portion of the cyclic urea from said lean solution.